

## CLAIMS

I claim:

1. A differential radio comprising:  
 a differential antenna having an input and an output;  
 a differential duplexer, generating two receiving signals and receiving two transmitting signals, electrically connected to the input and output of the differential antenna;  
 a differential low noise amplifier, receiving the two receiving signals, generating two LNA signals;  
 a first differential filter receiving the two LNA signals and generating a first differential filter signal;  
 a first differential mixer receiving the first differential signal and generating a first differential mixer output signal;  
 a signal conditioning circuit, receiving the first differential mixer output signal, generating a conditioned differential signal;  
 a second differential mixer, receiving the conditioned differential signal, generating a second differential mixer output signal;  
 a second differential filter, receiving the second differential mixer output signal, generating a second differential filter signal; and  
 a differential power amplifier receiving the second differential filter signal and generating the two transmitting signals.

2. A differential radio as in claim 1, wherein the duplexer is an FBAR.

3. A differential radio as in claim 1, wherein the differential antenna is a Yagi-Uda.

4. A differential radio as in claim 3, wherein the differential antenna is incorporated into a printed circuit board.

5. A differential radio as in claim 1, the differential power amplifier comprising:

3 an input matching network having a differential input and a first and  
 4 second IMN output;  
 5 a first field effect transistor (FET), having a gate connected to the first  
 6 IMN output;  
 7 a first capacitor, connected to the drain of the first FET;  
 8 a second FET, having a gate connected to the first capacitor;  
 9 a third FET, having a source connected to the source of the second FET at  
 10 a first node;  
 11 an output matching (OMN), having a first input connecting to the drain of  
 12 the second FET and a second input connecting to the drain of the third FET;  
 13 a first inductor connecting between the first node and ground;  
 14 a second capacitor connected to the gate of the third FET;  
 15 a fourth FET having a drain connected to the second capacitor, a gate  
 16 connected to the second IMN output, a source connected to the source of the first  
 17 FET at a second node; and  
 18 a second inductor connects between node B and ground.

1 6. A differential radio as in claim 5, wherein the duplexer includes film  
 2 bulk acoustic resonators.

1 7. A differential radio as in claim 5, wherein the differential antenna is  
 2 incorporated into a printed circuit board.